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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

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First Named Inventor or Application Identifier

Bill, David

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APPLICATION ELEMENTS
See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
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1. [ ] **Fee Transmittal Form**
(Submit an original, and a duplicate for fee processing)

2. [X] **Specification** *[Total Pages* 30 *]*
(preferred arrangement set forth below)
- Descriptive title of the Invention
- Cross References to Related Applications
- Statement Regarding Fed sponsored R & D
- Reference to Microfiche Appendix
- Background of the Invention
- Brief Summary of the Invention
- Brief Description of the Drawings *(if filed)*
- Detailed Description
- Claim(s)
- Abstract of the Disclosure

3. [X] **Drawing(s)** *(35 USC 113)* *[Total Sheets* 2 *]*

4. **Oath or Declaration** *[Total Pages* ___ *]*

   a. [ ] Newly executed (original or copy)

   b. [ ] Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 17 completed)
[Note Box 5 below]

     i. [ ] <u>DELETION OF INVENTOR(S)</u>
Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).

5. [ ] **Incorporation By Reference** *(useable if Box 4b is checked)*
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. [ ] Microfiche Computer Program *(Appendix)*

7. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)

   a. [ ] Computer Readable Copy

   b. [ ] Paper Copy (identical to computer copy)

   c. [ ] Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

8. [ ] Assignment Papers (cover sheet & document(s))

9. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney

10. [ ] English Translation Document *(if applicable)*

11. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations

12. [ ] Preliminary Amendment

13. [ ] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*

14. [ ] Small Entity Statement(s) [ ] Statement filed in prior application, Status still proper and desired

15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*

16. [X] Other: *Certificate of Mailing*

17. **If a CONTINUING APPLICATION,** *check appropriate box and supply the requisite information:*

[ ] Continuation   [ ] Divisional   [ ] Continuation-in-part (CIP)   of prior application No: _____ / _____

18. CORRESPONDENCE ADDRESS

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(Insert Customer No. or Attach bar code label here)

or [X] Correspondence address below

NAME	Steven A. Swernofsky	Reg. No. 33,040
	The Law Offices of Steven A. Swernofsky	
ADDRESS	Post Office Box 390013	

CITY	Mountain View	STATE	CA	ZIP CODE	94039-0013
COUNTRY	USA	TELEPHONE	(650) 947-0700	FAX	(650) 947-8438

1   This application is submitted in the name of the following inventor:

2

3	Inventor	Citizenship	Residence City and State
4	Bill, David	United States	Foster City, California

5

6   The assignee is <u>Terraflex Data Systems, Inc.</u>, a California corporation hav-

7   ing an office at 1209 Howard Avenue, Suite 200, Burlingame CA 94010.

8

9   <u>Title of the Invention</u>

10

11   Distributing Personalized Content

12

13   <u>Background of the Invention</u>

14

15   *1.   Field of the Invention*

16

17   This invention relates to distributing personalized content.

18

19   *2.   Related Art*

20

21   Known distribution systems for content include broadcast systems, such as

22   broadcast radio and broadcast television, and personalized systems, such as direct pur-

1 chases of records and videotapes. Recent developments in content distribution include

2 digital storage of content and digital distribution of content, including both audio and

3 video. For example, it is now possible to store popular songs on disk and distribute those

4 songs to recipients using a communication network.

5

6 One problem in the known art is that distributing personalized information

7 greatly increases the bandwidth used for distribution. At any one moment, each individ-

8 ual recipient can have different desires for content, so a large number of recipients can

9 use substantial amounts of distribution bandwidth. Distribution bandwidth includes both

10 the communication infrastructure to transmit that content to recipients, as well as the in-

11 frastructure to retrieve that content from storage and present that content to the communi-

12 cation infrastructure. For example, while it can be relatively easy to store several thou-

13 sand songs on magnetic media, it is still relatively difficult to retrieve more than a few

14 dozen of those songs from magnetic media simultaneously.

15

16 Accordingly, it would be desirable to distribute personalized content to po-

17 tentially large numbers of recipients, without incurring the problems of the known art.

18 This advantage is achieved in an embodiment of the invention in which a pool is selected,

19 from among all content available for distribution, of those content elements that will be

20 made available for simultaneous distribution, and personalized content is selected for dis-

21 tribution from that pool.

22

1   ## Summary of the Invention

2

3   The invention provides a method and system for distributing personalized

4   content to potentially large numbers of recipients. A pool is selected, from among all

5   content available for distribution, of those content elements that will be made available

6   for simultaneous distribution, and personalized content is selected for distribution from

7   that pool. The content of the pool can change with new selections over time. For each

8   individual recipient, content elements in the pool are examined to determine if they are

9   predicted to be of sufficient interest to that recipient for distribution, and if so, those con-

10   tent elements are distributed. If not, successive content elements in the pool are exam-

11   ined, relaxing the standard for sufficient interest, until at least one content element is

12   found and distributed to the individual recipient.

13

14   ## Brief Description of the Drawings

15

16   Figure 1 shows a diagram of a system for distributing personalized content.

17

18   Figure 2 shows a flow diagram of a method for distributing personalized

19   content.

20

1   Detailed Description of the Preferred Embodiment

2

3   In the following description, a preferred embodiment of the invention is de-

4   scribed with regard to preferred process steps and data structures. Those skilled in the art

5   would recognize after perusal of this application that embodiments of the invention can

6   be implemented using general or special purpose processors under program control, or

7   other circuits, adapted to particular process steps and data structures described herein, and

8   that implementation of the process steps and data structures described herein would not

9   require undue experimentation or further invention.

10

11   *System Elements*

12

13   Figure 1 shows a diagram of a system for distributing personalized content.

14

15   A system 100 for distributing personalized content includes a processor

16   110, program and data memory 120, mass storage 130, and a communication path 140 to

17   a community 150 of individual recipients.

18

19   The processor 110 and memory 120 include any one of a set of known

20   processors, operating under control of operating system and application programs in the

21   memory 120. The mass storage 130 includes magnetic, optical, or magneto-optical stor-

1   age suitable for maintains large amounts of data and delivering segments of that data to

2   the memory 120 upon instruction by the processor 110.

3

4   The mass storage 130 maintains a relatively large number of content ele-

5   ments. In a preferred embodiment, each content element comprises an audio song in a

6   digital format, such as an AU format, a WAV format, (preferably) a "Real Audio" or

7   "Real Player" format, or another known format. Storage and delivery of all of these

8   digital formats are known in the art. For example, in a preferred embodiment, the mass

9   storage 130 maintains about 80,000 songs.

10

11   The invention is described herein with primary regard to delivery of audio

12   songs in a digital format. However, the invention has wide applicability to delivery of

13   other content elements, including other types of data and other types of format. For ex-

14   ample, the invention is applicable to delivery of music videos, other audiovisual or video

15   elements, graphic elements, mapping information, seismic information, telemetry infor-

16   mation, or other known data in addition to or in combination therewith.

17

18   <u>Network Distribution</u>

19

20   The communication path 140 includes a communication link 141 (such as a

21   T1 connection or a similar link) to a communication network 142 (such as the internet or

22   a similar network). The communication link 141 is disposed for transmitting data from

1 the memory 120 at a rate sufficient to deliver each content element to the community 150

2 of individual recipients, so that each individual recipient 151 in the community 150 re-

3 ceives content elements substantially in real time.

4

5 The communication network 142 is disposed for transmitting data from the

6 communication link 141 to each individual recipient 151 in the community 150 at a rate

7 sufficient to deliver each content element to each individual recipient 151 in the commu-

8 nity 150 substantially in real time.

9

10 In alternative embodiments, the communication network 142 may be dis-

11 posed for transmitting data to sets of individual recipients 151 in the community 150 us-

12 ing a multicast distribution technique, such as IP multicast.

13

14 Each content element maintained on the mass storage 130 is assigned to one

15 or more channels for distribution.

16

17 In a preferred embodiment, each channel includes a recognizable genre or

18 subdivision of known music, such as for example "Big Bands," "Classical," "Country &

19 Western," "Heavy Metal," "Love Songs," "1950s," and the like. For example, in a pre-

20 ferred embodiment, each song maintained on the mass storage 130 is assigned to one or

21 more of about 100 or so channels. Channels can, but need not, be assigned numeric or

22 alphanumeric identifiers.

1

2 Each channel comprises content elements that are thought to appeal to sub-

3 stantially the same set of individual recipients 151 in the community 150.

4

5 For example, content elements are assigned to the channel "Country &

6 Western" because it is believed that they will all have appeal to a group of individual re-

7 cipients 151 in the community 150 who like "Country & Western" songs.

8

9 However, within each particular channel, those individual recipients 151

10 who receive content elements from that particular channel often have differing likes and

11 dislikes. For each particular channel, the content elements on that channel do not neces-

12 sarily have the same appeal to each individual recipient 151 receiving content elements

13 . from that channel.

14 .

15 <u>Distribution Pool</u>

16

17 For each particular channel, the system 100 maintains a pool 160 in the

18 memory 120 of selected content elements assigned to that channel.

19

20 Those content elements selected for the pool 160 are maintained in the

21 memory 120 to be distributed to individual recipients 151. The pool 160 is more than one

1   such content element, but smaller than the entire collection of content elements on the

2   mass storage 130.

3

4   The processor 110 and memory 120 are disposed to be able to deliver sub-

5   stantially all the content elements in the pool 160 simultaneously and substantially in real

6   time.

7

8   In alternative embodiments, the pool 160 can be maintained on the mass

9   storage 130 in addition to or instead of in the memory 120. The pool 160 is limited only

10   by the ability of the system 100 to retrieve and deliver substantially all of the content ele-

11   ments in the pool 160 simultaneously.

12

13 . In a preferred embodiment, the pool 160 comprises about 30 content ele-

14   ments for each channel. The inventor has found that this is a sufficient large number that,

15   at any particular time, virtually every individual recipient 151 will have at least one con-

16   tent element they will enjoy. The inventor has also found that this is a sufficiently small

17   number that the processor 110 and memory 120 are not substantially taxed by attempting

18   to deliver all content elements in the pool 160 simultaneously.

19

20   In alternative embodiments, the number of content elements in the pool 160

21   could be different. The number of content elements in the pool 160 may be selected in

22   response to various factors, in addition to or instead of the factors noted above.

o   The number may be adaptive to the predicted composition of the community 150, which itself may be responsive to the time of day or day of the week.

o   The number may be adaptive to requests from individual recipients 151 or to ratings from individual recipients 151.

o   The number may be adaptive to the size or type of content elements in the pool 160. For example, one video element might require substantially more resources to deliver than one audio element, and thus might be considered to occupy a larger proportion of the pool 160.

o   The number may be adaptive to priorities assigned to content elements in the pool 160, or to other administrative requirements.

The content elements in the pool 160 are replaced from time to time; thus, the pool 160 does not comprise the same content elements at all times.

In a preferred embodiment, each content element in the pool 160 has a known play length, which is the amount of time it takes to play that song in real time. Each song is retained in the pool 160 for its play length (plus any amount of time required to actually distribute the song if it has been selected for distribution to individual recipi-

1 ents 151). After a particular content element is ready for replacement, the processor 110

2 selects a new content element from the entire set of content elements (for that particular

3 channel) to enter into the pool 160.

4

5   In alternative embodiments, the content elements in the pool 160 may be

6 replaced in response to other factors, in addition to or instead of play length:

7

8 o   The entire pool 160 may be selected for replacement en masse, either periodically,

9   in response to some random factor, or in response to some other factor such as

10   feedback from the community 150.

11

12 o   Individual content elements in the pool 160 may be selected for replacement ear-

13 ·   lier or later than their play length, in response to some random factor, in response

14 .   to feedback from the community 150, or in response to failure to be selected for

15   distribution.

16

17 Personalized Distribution

18

19   For each individual recipient 151 requesting personalized distribution, there

20 are times when a content element is selected for personalized distribution to that individ-

21 ual recipient 151. At those times, the content element is selected from the pool 160. Af-

22 ter examining at least one such content element, the processor 110 selects one content

1   element for distribution to that individual recipient 151. After that one content element is

2   distributed to that individual recipient 151 (and if the individual recipient 151 still desires

3   personalized distribution) the processor 110 continues to examine content elements in the

4   pool 160 and select them for distribution to that individual recipient 151.

5

6   In a preferred embodiment, the processor 110 selects content elements for

7   personalized distribution at times responsive to each individual recipient 151, such as

8   when an individual recipient 151 specifically requests distribution of a content element,

9   or when a previous content element ends, or triggered by a timer or other event.

10

11   In alternative embodiments, the processor 110 may select content elements

12   for personalized distribution at times responsive to sets of individual recipients 151, such

13   as when content elements are scheduled for multicast to a plurality of individual recipi-

14   ents 151. In such alternative embodiments, the processor 110 may give preference to

15   those content elements scheduled for multicast. The preference may be expressed, for ex-

16   ample, by adjusting the score of content elements responsive to that schedule or by re-

17   stricting the selection for personalized distribution to those content elements.

18

19   The processor 110 selects a first content element from the pool 160, and

20   determines a predicted interest by the individual recipient 151 in that first content ele-

21   ment.

22

1   In a preferred embodiment, the first content element is selected from the

2   pool in a weighted round robin manner. In alternative embodiments, the first content

3   element may be selected in response to another technique, such as at random.

4

5   In a preferred embodiment, the processor 110 determines the predicted in-

6   terest in response to a set of known correlation factors between the particular individual

7   recipient 151 and other known groups of individual recipients 151 in the community 150.

8   The processor 110 preferably uses a known CF (collaborative filtering) technique. CF

9   techniques are known in the art of predicting audience response.

10

11   In alternative embodiments, where determining a predicted interest is rela-

12   tively less resource-intensive, the processor 110 may make the determination using other

13   techniques. For example, the processor 110 may make the determination for a larger

14   number of content elements in the pool 160 (even for all of them). The processor 110

15   may make the determination for content elements not already in the pool 160 (for possible

16   addition to the pool 160).

17

18   The processor 110 compares the predicted interest with a minimum interest

19   threshold, to determine whether the first content element will probably be liked or dis-

20   liked by the particular individual recipient 151.

21

1   In a preferred embodiment, both the predicted interest and the interest

2   threshold are compared using dimensionless units. In this application these units are re-

3   ferred to as being on a scale of zero (worst) to ten (best). However, there is no special

4   reason for the scale to have this particular granularity or these particular endpoint values.

5

6   In a preferred embodiment, the minimum interest threshold is initially set

7   relatively high, to maximize the probability that the individual recipient 151 will like the

8   song. For example, the initial minimum interest threshold is preferably set to about nine

9   (on a scale of zero to ten).

10

11   The processor 110 also compares the first content element with a set of

12   business rules, to determine whether distribution of the first content element will be dis-

13   allowed for administrative reasons. Business rules have three possible types:

14

15   o   Legal restrictions imposed on distributing content elements, such as by licensing

16   requirements. For example, the license for distributing songs can sometimes re-

17   quire that a particular song not be played more than twice in one hour, or that a

18   particular artist's songs not be played more than three times in one hour.

19

20   o   Marketing restrictions imposed on distributing content elements, such as by per-

21   ceived desires or needs of the community 150. For example, marketing considera-

22   tions can dictate that a particular song not be played twice in a row, or that par-

1 ticular artist's songs not be played more than three times in a row, or that a "down-

2 beat" song not be followed immediately by an "upbeat" song.

3

4 o Other administrative, financial, or technical restrictions. For example, administra-

5 tive considerations can dictate that song play cannot run over scheduled commer-

6 cial breaks or station identification.

7

8 If the processor 110 determines that the content element meets the mini-

9 mum interest threshold and the business rules, it distributes the content element tot the

10 individual recipient 151.

11

12 If the processor 110 determines that the content element should not be dis-

13 tributed for either reason, it selects a second content element from the pool 160 and re-

14 peats the examination with regard to that second content element.

15

16 For each successive content element it examines, the processor 110 adjusts

17 the minimum interest threshold downward. The processor 110 compares each of the

18 content elements it has examined against the adjusted minimum interest threshold, and

19 selects the best one.

20

21 Thus, if the first content element does not meet the relatively high initial

22 threshold, both the first and second content elements are compared against a somewhat

1 relaxed threshold. If both the first and second content elements do not meet the relaxed

2 threshold, a third content element is selected and all of the first, second, and third content

3 elements are compared against a further relaxed threshold. This process is repeated until

4 one of the following:

5

6 o   at least one content element meets a sufficiently relaxed threshold (and satisfies the

7   business rules); or

8

9 o   the processor 110 has examined a selected maximum number of content elements

10   (possibly the entire pool 160).

11

12   In either case, the processor 110 distributes one content element it has ex-

13 amined that has the best predicted interest (and satisfies the business rules).

14

15   In a preferred embodiment, the minimum interest threshold is adjusted

16 downward by multiplying the previous minimum interest threshold by a factor smaller

17 than one. For example, this factor is preferably about 0.9.

18

19   In a preferred embodiment, the maximum number of content elements ex-

20 amined by the processor 110 is about half the size of the pool 160. For example, this

21 number is preferably about 15.

22

1   In alternative embodiments, any of the values used for this process may be

2   adaptively selected in response to a variety of factors:

3

4   o   The initial value for the minimum interest threshold can be adaptively selected in

5   response to one or more of (1) the average predicted interest of all content ele-

6   ments in the pool 160 for the entire community 150, (2) the average expressed in-

7   terest by the individual recipient 151 for content elements distributed to that indi-

8   vidual recipient 151 in the past, (3) a measure of relative load on the processor

9   110, or other known factors.

10

11   o   The factor for reducing the minimum interest threshold, or the technique for ad-

12   justing the minimum interest threshold, can be adaptively selected in response to

13   one or more of the factors noted above.

14

15   o   The maximum number of content elements examined by the processor, can be

16   adaptively selected in response to one or more of the factors noted above.

17

18   In a preferred embodiment, the processor 110 selects content elements for

19   personalized distribution separately for each channel.

20

21   In alternative embodiments, the individual recipient 151 can select a plural-

22   ity of channels from which the processor 110 selects content elements for personalized

1 distribution. In such alternative embodiments, the processor 110 can select content ele-

2 ments from a union of pools 160 for each channel, or using some other technique.

3

4 *Method of Operation*

5

6 Figure 2 shows a flow diagram of a method for distributing personalized

7 content.

8

9 A method 200 is performed by the system 100, including the processor 110,

10 memory 120, mass storage 130, and communication path 140.

11

12 Pool Selection

13

14 At a flow point 210, the system 100 has a set of content elements for distri-

15 bution to the community 150.

16

17 At a step 211, the processor 110 selects a set of content elements for entry

18 into the pool 160. As noted herein, the number of elements in the pool 160 is preferably

19 about 30, but may be different and may be adaptive in response to factors noted herein.

20

21 At a step 212, the processor 110 periodically replaces one or more content

22 elements in the pool 160. As noted herein, the processor 110 preferably replaces each

1   content element in the pool 160 after the duration of its play length. At that time, the

2   processor 110 retains ejected content elements in the memory 120 if they are then cur-

3   rently being distributed, but marks them as ineligible for selection for personalized distri-

4   bution.

5

6   In alternative embodiments, at the step 212, the processor 110 may periodi-

7   cally replace all of the content elements in the pool 160. For example, the processor 110

8   may perform this step periodically about every 30 seconds.

9

10   If the system 100 is reset for any reason, such as by a system failure or a re-

11 set forced by an operator, the method 200 returns to the flow point 210 and the processor

12 110 selects a new pool 160.

13

14 Content Element Selection

15

16   At a flow point 220, the system 100 has selected the pool 160 of content

17 elements for personalized distribution to individual recipients 151 in the community 150.

18

19   At a step 221, an individual recipient 151 makes a request for personalized

20 content from a particular channel (or as noted above, from a particular set of channels).

21 The processor 110 receives the request and the method 200 proceeds with the next step.

22

1   At a step 222, the processor 110 searches the pool 160 for a next content

2   element to be distributed. As noted herein, the particular method for search is preferably

3   a weighted round robin technique, but there is no particular reason in the context of this

4   invention for using any particular search technique.

5

6   At a step 223, the processor 110 determines a predicted rating for the se-

7   lected content element. As noted herein, the processor 110 preferably uses a known CF

8   technique.

9

10   At a step 224, the processor 110 determines if the selected content element

11   meets the business rules for selection.

12

13   At a step 225, the processor 110 combines the predicted rating with other

14   selected factors to determine a score for that particular content element.

15

16   In a preferred embodiment, violating any of the business rules bars distri-

17   bution of the content element, so the processor 110 assigns the content element the lowest

18   possible score (zero).

19

20   In alternative embodiments, violating licensing restrictions has the same ef-

21   fect, but violating marketing or administrative restrictions may have a less drastic effect.

1   For example, the processor 110 can significantly reduce the score of the content element,

2   but not reduce it to zero, for violating selected "soft" marketing business rules.

3

4   At a step 226, the processor 110 determines if the score meets or exceeds a

5   selected minimum threshold for the individual recipient 151. As noted above, the initial

6   value for the minimum threshold is about nine (on a scale of zero to ten), but may be dif-

7   ferent or may be adaptive responsive to a variety of factors.

8

9   If the score for the selected content element meets or exceeds the selected

10   minimum threshold, the method 200 proceeds with the flow point 230, and the content

11   element is distributed to the individual recipient 151.

12

13   If the score for the selected content element does not meet the selected

14   minimum threshold, the method 200 proceeds with the next step.

15

16   At a step 227, the processor 110 adjusts the selected minimum threshold to

17   determine an adjusted minimum threshold. As noted above, the processor 110 preferably

18   multiplies the selected minimum threshold by a factor less than one, such as 0.9, but in

19   alternative embodiments the factor may be different or may be adaptive in response to

20   various factors.

21

1   At a step 228, the processor 110 determines if the score for any content

2   element selected so far meets or exceeds the adjusted minimum threshold.

3

4   If one or more content elements selected so far meet or exceed the adjusted

5   minimum threshold, the processor 110 selects the content element with the highest score.

6   The method 200 proceeds with the flow point 230, and that content element is distributed

7   to the individual recipient 151.

8

9   If none of the content elements selected so far meet or exceed the adjusted

10   threshold, the method 200 returns to the step 222, and a next content element is selected.

11

12   As noted herein, the method 200 returns to the step 222 only a selected

13   maximum number of times. In a preferred embodiment, this selected maximum number

14   is about 15. In alternative embodiments, this selected maximum number may be different

15   or may be adaptive in response to various factors.

16

17   If the selected maximum number of returns to the step 222 would be ex-

18   ceeded, the processor 110 selects the content element with the highest score, similarly to

19   the case when that score did meet or exceed the adjusted minimum threshold. Similarly,

20   the method 200 proceeds with the flow point 230, and that content element is distributed

21   to the individual recipient 151.

22

1   <u>Content Element Distribution</u>

2

3   At a flow point 230, the system 100 has selected a particular content ele-

4   ment for distribution to the individual recipient 151.

5

6   At a step 231, the processor 110 reads the selected content element into the

7   memory 120 from the mass storage 130 (if the selected content element is not already in

8   the memory 120).

9

10   At a step 232, the processor 110 distributes the selected content element

11   from the memory 120, using the communication path 140, to the individual recipient 151.

12

13   At a flow point 240, the system 100 has distributed the selected content

14   element to the individual recipient 151, and is ready to distribute further personalized

15   content elements. The method 200 proceeds with the flow point 230.

16

17   *Alternative Embodiments*

18

19   Although preferred embodiments are disclosed herein, many variations are

20   possible which remain within the concept, scope, and spirit of the invention, and these

21   variations would become clear to those skilled in the art after perusal of this application.

1 <u>Claims</u>

2

3 1. A method including steps for

4 selecting a pool of content elements from a set of content elements, said

5 pool having a plurality of content elements but less than all of said set of content ele-

6 ments;

7 determining a score for one of said content elements in said pool, said score

8 being responsive to a predicted interest by an individual recipient of said one content

9 element to a recipient;

10 comparing said score with a selected threshold;

11 choosing whether to distribute said one content element to said individual

12 recipient, in response to said step of comparing.

13

14 2. A method as in claim 1, including steps for adjusting said selected

15 threshold in response to said steps for comparing.

16

17 3. A method as in claim 1, including steps for adjusting said selected

18 threshold in response to said individual recipient.

19

20 4. A method as in claim 1, including steps for

21 adjusting said selected threshold in response to said steps for comparing;

1   noting a plurality of content elements in said pool, each having an associ-

2   ated score, in response to said steps for adjusting;

3   selecting one of said plurality in response to said scores.

4

5   5.   A method as in claim 1, including steps for

6   noting a plurality of content elements in said pool, each having an associ-

7   ated score, in response to said step of comparing;

8   selecting one of said plurality in response to said scores.

9

10   6.   A method as in claim 1, wherein a number of said individual recipi-

11   ents is substantially greater than a number of content elements in said pool.

12

13   7.   A method as in claim 1, including steps for

14   repeating said steps for determining and steps for comparing, for a plurality

15   of content elements in said pool;

16   selecting one of said plurality in response to said scores.

17

18   8.   A method as in claim 7, including steps for adjusting said selected

19   threshold in response to said steps for comparing.

20

21   9.   A method as in claim 7, including steps for adjusting said selected

22   threshold in response to said individual recipient.

10.   A method as in claim 7, including steps for

adjusting said selected threshold in response to said steps for comparing;

noting a plurality of content elements in said pool, each having an associated score, in response to said steps for adjusting;

selecting one of said plurality in response to said scores.

11.   A method as in claim 7, including steps for

noting a plurality of content elements in said pool, each having an associated score, in response to said step of comparing;

selecting one of said plurality in response to said scores.

12.   A method as in claim 7, wherein said steps for selecting are responsive to said selected threshold.

13.   A method as in claim 1, including steps for

repeating said steps for determining, steps for comparing, and steps for choosing, until a selected condition.

14.   A method as in claim 13, including steps for adjusting said selected threshold in response to said steps for comparing.

15. A method as in claim 13, including steps for adjusting said selected threshold in response to said individual recipient.

16. A method as in claim 13, including steps for

adjusting said selected threshold in response to said steps for comparing;

noting a plurality of content elements in said pool, each having an associated score, in response to said steps for adjusting;

selecting one of said plurality in response to said scores.

17. A method as in claim 13, including steps for

noting a plurality of content elements in said pool, each having an associated score, in response to said step of comparing;

selecting one of said plurality in response to said scores.

18. A method as in claim 13, wherein said selected condition is responsive to a number of times said steps for determining are performed.

19. A method as in claim 13, wherein said selected condition is that at least one content element in said pool is chosen for distribution.

20. A method as in claim 1, including steps for selecting a new said pool.

21.   A method as in claim 20, wherein said steps for selecting said new pool include steps for replacing the entire said pool.

22.   A method as in claim 20, wherein said steps for selecting said new pool include steps for

selecting an individual content element for addition to said pool;

selecting an individual content element for removal from said pool

23.   A method as in claim 20, wherein said steps for selecting said new pool are responsive to a timer.

24.   A system including

a pool of content elements selected from a set of content elements, said pool having a plurality of content elements but less than all of said set of content elements;

a score for one of said content elements in said pool, said score being responsive to a predicted interest by an individual recipient of said one content element to a recipient;

a result of comparing said score with a selected threshold;

a communication path disposed for coupling said one content element to said individual recipient, in response to said result of comparing.

1   25.   A system as in claim 24, including an adjusted threshold, said ad-

2   justed threshold being in response to said result of comparing.

3

4   26.   A system as in claim 24, including an adjusted threshold, said ad-

5   justed threshold being in response to said individual recipient.

6

7   27.   A system as in claim 24, including

8   an adjusted threshold, said adjusted threshold being in response to said re-

9   sult for comparing;

10   a plurality of scores each associated with a content element in said pool;

11   a selected one of said content elements, said selected one being in response

12   to said scores and said adjusted threshold.

13

14   28.   A system as in claim 24, wherein a number of said individual recipi-

15   ents is substantially greater than a number of content elements in said pool.

16

17   29.   A method as in claim 24, including

18   an adjusted threshold, said adjusted threshold being in response to said re-

19   sult for comparing;

20   a plurality of scores, each associated with a different one of said content

21   elements in said pool;

1   a corresponding set of results of comparing said plurality of scores with said

2   adjusted threshold;

3   a selected one of said content elements, said selected one being responsive

4   to said set of results of comparing.

5

6   30.   A system as in claim 24, including a new said pool.
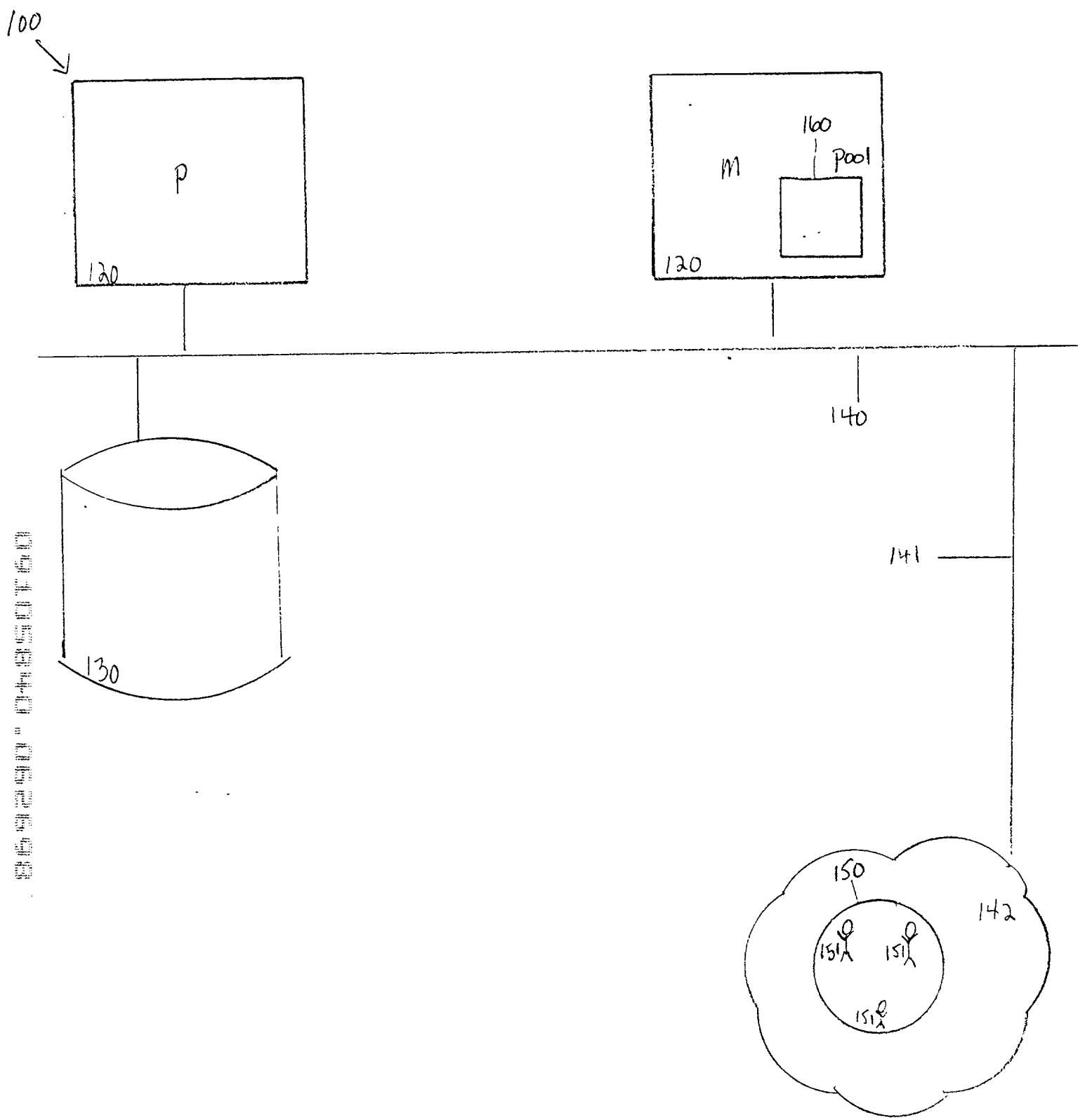
7

8   31.   A method as in claim 30, wherein said new pool is responsive to

9   steps for replacing the entire said pool.
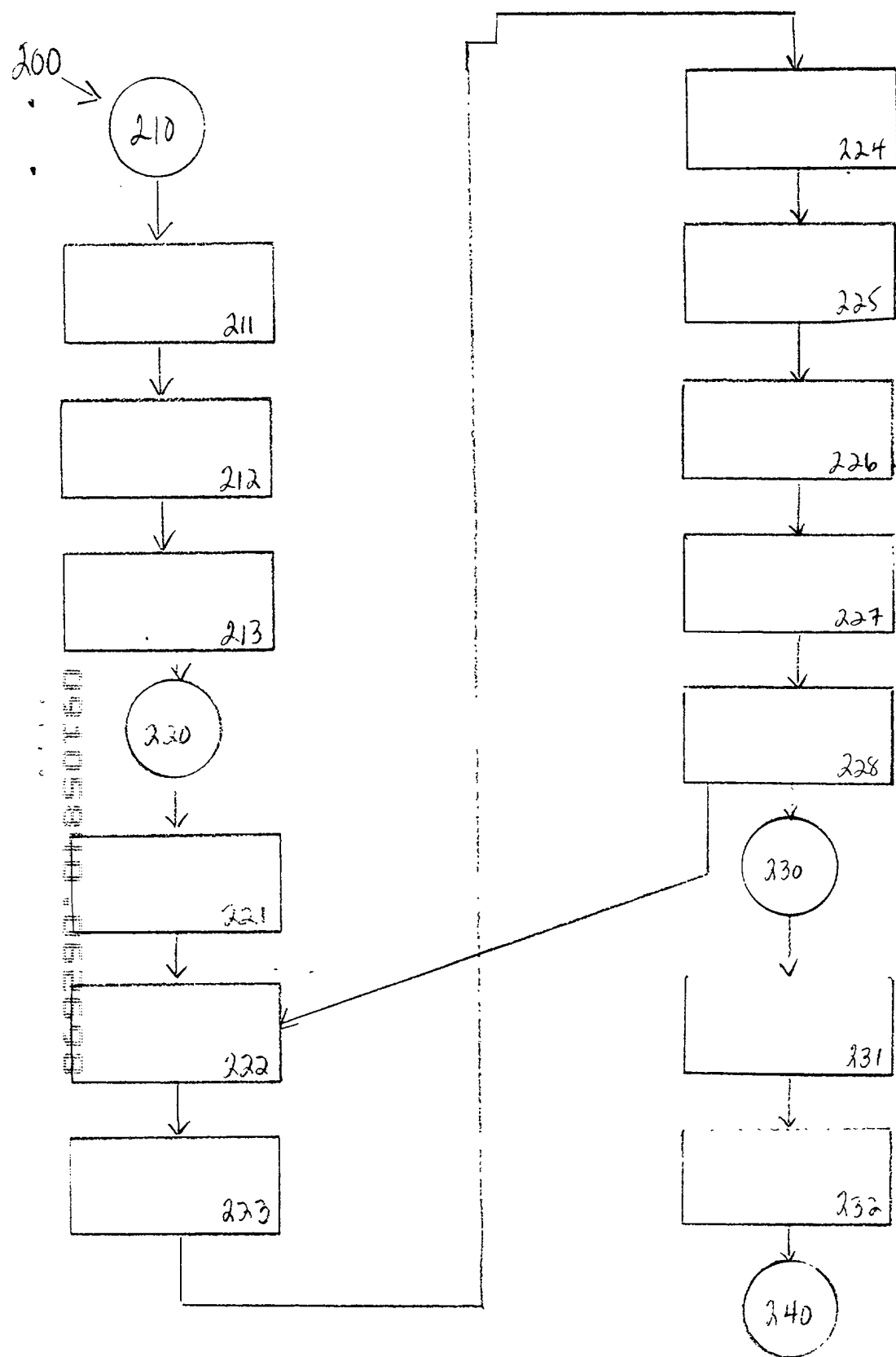
10

11   32.   A method as in claim 30, wherein said new pool includes an individ-

12   ual content element added to said pool, and excludes an individual content element re-

13   moved from said pool

14

15   33.   A method as in claim 20, wherein content elements in said new pool

16   are responsive to a timer.

1   <u>Abstract of the Disclosure</u>

2

3   The invention provides a method and system for distributing personalized

4 content to potentially large numbers of recipients. A pool is selected, from among all

5 content available for distribution, of those content elements that will be made available

6 for simultaneous distribution, and personalized content is selected for distribution from

7 that pool. The content of the pool can change with new selections over time. For each

8 individual recipient, content elements in the pool are examined to determine if they are

9 predicted to be of sufficient interest to that recipient for distribution, and if so, those con-

10 tent elements are distributed. If not, successive content elements in the pool are exam-

11 ined, relaxing the standard for sufficient interest, until at least one content element is

12 found and distributed to the individual recipient.

1

100

P

120

M

160
Pool

120

140

141

130

150

151   151   142

151

200

210

211

212

213

220

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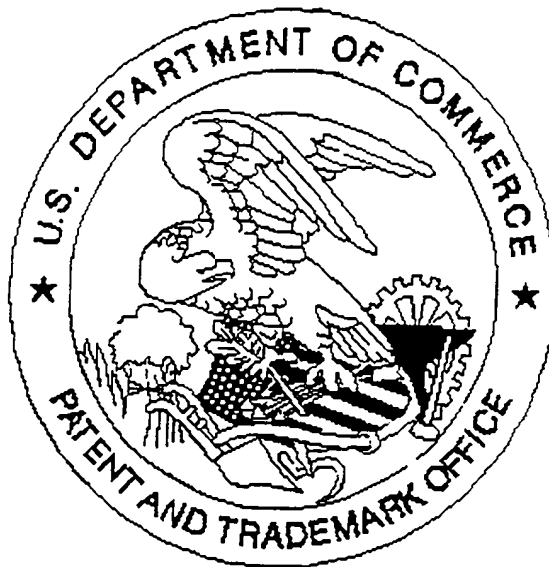
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